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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,482	01/07/2002	Jia-Fam Wong	ADTP0028USA	2814

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NAIPO (NORTH AMERICA INTERNATIONAL PATENT OFFICE)
P.O. BOX 506
MERRIFIELD, VA 22116

EXAMINER

RUDE, TIMOTHY L

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 12/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/683,482

Applicant(s)

WONG, JIA-FAM

Examiner

Timothy L Rude

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 07 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 07 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language, or
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

1. Claims 1, 2, 5, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsuyama et al (Matsuyama) USPAT 6,469,765.

As to claim 1, Matsuyama discloses in Figures 9 and 10, third embodiment (col. 21, line 36 through col. 22, line 55), a liquid crystal display (LCD) comprising: a first substrate, 900, comprising a first surface; a second substrate, 800, comprising a second surface, the second surface being in parallel with and opposite to the first surface of the first substrate, and a pixel area being defined on the second surface; a second common electrode, 500 (Applicant's first electrode), positioned on the first surface of the first substrate; a first common electrode, 410 (Applicant's second electrode), disposed above the pixel region of the second substrate, the second electrode having side opening portions, 416 (Applicant's first slit) elongated along a first direction; an isolation

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layer, 812, disposed on the surface of the second substrate to cover the second electrode; a pixel electrode, 300 (Applicant's third electrode), disposed on the isolation layer and within the pixel region, opening portions, 304 (Applicant's second slit), being defined on the third electrode and along the first direction, the first and second slits being interlaced (per Figures 9 and 10); and a plurality of anisotropic liquid crystal molecules with negative dielectric constant (Abstract) positioned between the first electrode and the third electrode, the longitudinal axis of the liquid crystal molecules being positioned along a second direction horizontally (Figure 3 and col. 21, lines 42-45), and a first angle being formed between the first direction and the second direction; wherein a biased electric field is formed as a voltage is applied between the first electrode and the second electrode, such that (a) a first horizontal biased electric field is formed in the neighborhood of the second slit (Figure 4), the first horizontal biased electric field is perpendicular to the first direction, and the liquid crystal molecules are rotated to make the longitudinal axis of the liquid crystal molecules in the neighborhood of the second slit being in parallel to the first direction, (b) the longitudinal axis of the liquid crystal molecules in the neighborhood of the first electrode maintain along the second direction because no horizontal biased electrical field is formed near the first electrode, and (c) the liquid crystal molecules between the first electrode and the second slit of the third electrode gradually rotate from the second direction to the first direction.

FIG. 9

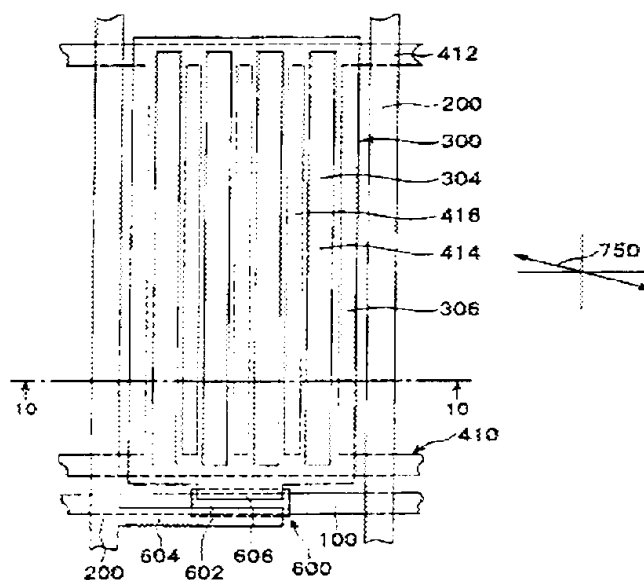
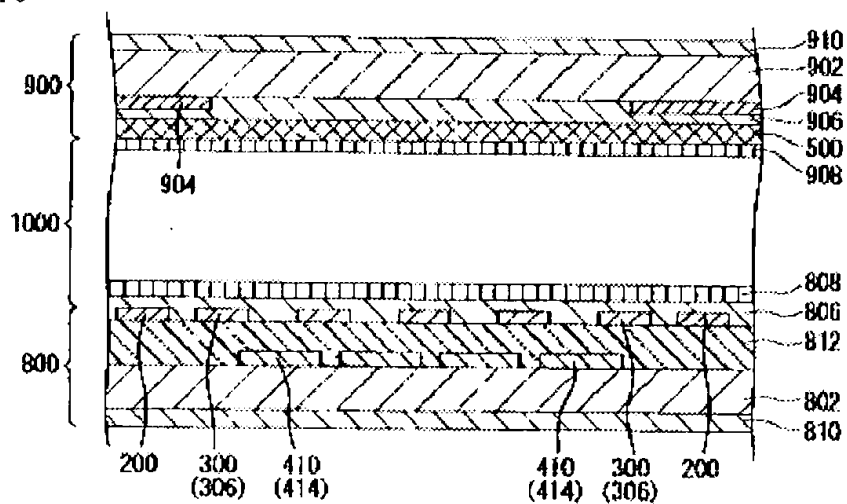


FIG. 10



As to claim 2, Matsuyama discloses the liquid crystal display of claim 1, further comprising a first polarizer, 910, positioned above the first substrate, and a second

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polarizer, 810, positioned below the second substrate (col. 14, lines 58-65 and col. 21, lines 42-45).

As to claim 5, the recitations of: wherein the biased electric field formed between the second electrode and the third electrode is used to accelerate the rotation of the liquid crystal molecules so as to reduce a driving voltage of the liquid crystal display, is an intended use and/or performance recitation in a device claim that is considered inherently met by the structure of Matsuyama.

As to claim 6, the recitations of: wherein the isolation layer is used to isolate the second electrode from the third electrode and avoid a short circuit between the second electrode and the third electrode, is an intended use and/or performance recitation in a device claim that is considered inherently met by the structure of Matsuyama.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuyama in view of Sato USPAT 6,160,601.

As to claims 3 and 4 Matsuyama discloses the liquid crystal display of claim 1 wherein the second electrode, 410, is a transparent common electrode (Applicant's pixel electrode) (col. 15, lines 14-17 and col. 21, lines 42-45) and wherein the third electrode, 300, is a transparent pixel electrode (Applicant's lower common electrode).

However, Matsuyama does not explicitly disclose a display wherein the second electrode, 410, is a pixel electrode and wherein the third electrode, 300, is a lower common electrode.

Sato teaches in his first embodiment (Figures 7 and 8) a TFT substrate that has the pixel electrode above the common electrode with a bottom gate TFT (col. 8, lines 63-65) is functionally equivalent (col. 12, lines 7-11) to his second embodiment (Figures 10 and 11) a TFT substrate that has the common electrode above the pixel electrode with a top gate TFT (col. 11, lines 59-61). Furthermore, reversal of parts is considered an obvious expedient, MPEP 2144.04, VI, A.

Sato is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to use a pixel electrode below a common electrode as an art recognized equivalent, MPEP 2144.06.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Matsuyama with the art recognized equivalent of Sato.

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3. Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuyama in view of Tani USPAT 6,392,735.

As to claims 7, 8, and 11, Matsuyama discloses the liquid crystal display of claim 1.

Matsuyama does not explicitly disclose the use of a conductive protrusion.

Tani teaches as prior art the use of a conductive columnar spacer (Applicant's protrusion) projected from the first surface of the first substrate, the protrusion being electrically connecting the counter electrode (Applicant's first electrode) with the auxiliary line so that the first electrode and the auxiliary line are held at substantially equal voltage. Since the voltage is applied from a large number of locations to the counter electrode, the resistance between the auxiliary line and the counter electrode is so small that the voltage at the counter electrode can be surely maintained at a predetermined value (Applicant's reduce signal delay). Also, since no stress is generated, irregular display may not occur, thus improving the display quality. Further, the data bus lines and the scan bus lines may not be disconnected (col. 1, lines 40-57).

Tani is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add conductive protrusions to electrically connect a first electrode on a first substrate to conductive elements of like potential on the opposed substrate so the counter electrode can be surely maintained at a predetermined value, so, an irregular display may not occur, thus improving the display quality.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Matsuyama with the conductive protrusions of Tani to electrically connect a first electrode on a first substrate to a third electrode of like potential on the opposed substrate so the counter electrode can be surely maintained at a predetermined value so, an irregular display may not occur, thus improving the display quality.

As to claim 9, Matsuyama discloses a display wherein the third electrode has a width, and the width is reduced by opening portions, 304 (Applicant's second slit), so as to increase an aperture ratio of the display.

As to claim 10, the recitations of: wherein static charges formed on the first electrode are released through the protrusion after the first electrode is connected to the third electrode, is a performance recitation in a device claim that is considered inherently met by the structure of Matsuyama in view of Tani.

Conclusion

References cited but not applied are relevant to the instant application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L Rude whose telephone number is (703) 305-0418. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William L Sikes can be reached on (703) 308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.



Timothy L Rude
Examiner
Art Unit 2871

TLR
December 2, 2002



EXAMINER
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